

**Municipal Separate Storm Sewer System (MS4) Audit
Hanover County, Virginia
July 14, 2005**

Prepared for:
EPA Region 3
1650 Arch Street
Philadelphia, PA 19103-2029

Prepared by:
Science Applications International Corporation
11251 Roger Bacon Drive
Reston, VA 20190

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EXECUTIVE SUMMARY

Detailed findings from the Municipal Separate Storm Sewer System (MS4) audit conducted at Hanover County, Virginia on July 14, 2005 are presented in this report. The major findings from the MS4 audit are as follows:

- **Minimum Control Measures 1 and 2: Public Education and Outreach and Public Involvement and Participation**
The County completed all measurable goals that were due by April 9, 2005.
- **Minimum Control Measure 3: Illicit discharge detection and elimination**
The County was not required to complete any measurable goals by the date of the MS4 audit.
- **Minimum Control Measure 4: Construction site storm water runoff control**
The County has not completed all measurable goals related to this minimum control measure. Based on the on-site inspection observations and file review, the MS4 audit team has determined that the County is not adequately enforcing the existing Erosion and Sediment Control Ordinance (Chapter 10, Article I) and is not adequately conducting the Erosion and Sediment Control Inspection Program.
- **Minimum Control Measure 5: Post-construction storm water management in new development and redevelopment**
The County completed all measurable goals that were due by April 9, 2005. However, the County is not able to adequately enforce the maintenance agreements for privately-owned permanent storm water management measures or to ensure that the County is adequately maintaining County-owned permanent storm water management measures because it lacks a formal inspection program.
- **Minimum Control Measure 6: Pollution Prevention for Municipal Operations**
The County was not required to complete any measurable goals by the date of the MS4 audit.

Municipal Separate Storm Sewer System (MS4) Audit
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1. INTRODUCTION

At the request of the U.S. Environmental Protection Agency (EPA) Region 3, a Municipal Separate Storm Sewer System (MS4) Audit was conducted on July 14, 2005, at Hanover County, Virginia. The audit team included Jennifer Legge and Carol Winston of Science Applications International Corporation; Paula Estornell of Region 3 EPA; and Charley Banks, Eric Capps, Moira Croghan, Doug Fritz, Lee Hill, Jeff Selengut, and Mike Vanlandingham of the Virginia Department of Conservation and Recreation (VADCR).

On April 9, 2003, Hanover County (County) was granted coverage under the Virginia Pollutant Discharge Elimination System (VPDES) General Permit for Small MS4s, effective from December 9, 2002 to December 9, 2007, and issued Permit No. VAR040012. As such, the County must develop and implement a Storm Water Management Program (SWMP) that includes six minimum control measures by April 9, 2008. In its SWMP, the County established measurable goals with associated deadlines for each of the six minimum control measures.

The remainder of this report summarizes the findings of the MS4 audit organized by the individual components described in the County's 2004 Annual Report (FY04 Annual Report) and is in the same order and format as the VPDES General Permit. Each section contains a summary of the findings associated with each program component and required and recommended actions. The first finding in each section indicates the status of the measurable goals that were required to be completed by the date of the MS4 audit.

2. FINDINGS

2.1 Public Education and Outreach (Permit Section II.B.1)

- The County completed all measurable goals that were due by April 9, 2005, including developing a library of reference materials, presenting a seminar on the County storm water program, developing a storm water brochure/fact sheet, and developing a storm water program section on the County web site.
- The FY04 Annual Report indicated that "Informational Bulletin No. 1 - Small MS4 Stormwater Program Overview" and "Informational Bulletin No. 2 - Illicit Discharge Detection and Elimination" would be available on the County's web site by May 1, 2005, and upon the adoption of an illicit discharge ordinance, respectively. Neither bulletin was posted on the web site as of July 14, 2005.
- The County does not keep records of public education and outreach efforts (e.g., number of brochures distributed, number of unique visitors to the County web site).

- Although the County has established a library of reference materials, it has not widely publicized its availability.

Required actions: *The County must post the informational bulletins on the County's web site.*

Recommended actions: *The County should:*

- (1) keep records of public education and outreach efforts to help demonstrate and measure the effectiveness of the County's storm water program.*
- (2) publicize the availability of the library of reference materials.*

2.2 Public Involvement and Participation (Permit Section II.B.2)

- The County completed all measurable goals that were due by April 9, 2005. The County conducted an informational meeting on the proposed VPDES MS4 Program on February 26, 2003, and public hearings on proposed ordinance modifications, as necessary.
- The County is involved in the Clean Hanover Initiative, which is a coordinated effort between the County Sheriff's Office, Virginia Department of Transportation, and other groups to remove trash from the County's roadways. The effort began in the Fall of 2004.

Required actions: *None.*

Recommended actions: *The County should include the Clean Hanover Initiative in its Annual Report to illustrate public participation in the County's SWMP.*

2.3 Illicit Discharge Detection and Elimination (Permit Section II.B.3)

- The County was not required to complete any measurable goals under this minimum control measure by the date of the MS4 audit. However, as detailed below, the County has completed one measurable goal ahead of schedule and is on schedule to complete its other measurable goals in the required timeframe.
- On July 1, 2005, the County adopted a Floodplain and Drainage Control ordinance amendment that prohibits non-storm water and illicit discharges into the storm sewer system.
- Ms. Kathy DeBusk, an intern in the County Department of Public Works, developed a worksheet and database for the mapping of outfalls. Ms. DeBusk reviews development plans to approximate the outfall locations and verifies their locations and characteristics in the field. The mapping, which was prioritized based on impaired stream segments, is more than 50% complete. To date, Ms. DeBusk has inventoried 400 points, but only 15% of outfalls are "major outfalls" as defined in 9 VAC 25-750-10 (i.e., an outfall that

discharges from a single pipe with an inside diameter of 36 inches or more or, for areas of the MS4 that receive storm water from lands zoned for industrial activity, with an outfall that discharges from a single pipe with an inside diameter of 12 inches or more).

- The County anticipates completing its mapping commitments by March 2006. Most outfalls will be mapped by the end of the summer, but outfalls that are obstructed by overgrowth will not be mapped until the winter months.
- Dry weather monitoring and sampling has been done in conjunction with the mapping process.
- The County visually screens outfalls to monitor for cross-connections and has not considered monitoring for fecal coliform.
- The County receptionist directs calls regarding illegal dumping, illicit discharges, drainage, and erosion and sediment from construction activities to the Department of Public Works. One engineer, on a rotating schedule, is assigned office duty each day and is responsible for receiving the complaints. The engineer logs, prioritizes, and follows-up on the complaint. Complaints are investigated no more than five working days after receipt. If the engineer believes the complaint is serious, a co-worker will investigate the complaint immediately. The Department of Public Works receives approximately 100 complaints per year. Most complaints involve drainage problems rather than illegal dumping or illicit discharges.
- The County has not enforced against illegal discharges since adopting the ordinance. The Fire Marshal has enforced safety regulations in response to illegal discharges.

Required actions: *In accordance with Section II.B.3 of the General Permit, the County must implement a formal enforcement program to enforce its Floodplain and Drainage Control ordinance amendment that prohibits non-storm water and illicit discharges into the storm sewer system.*

Recommended actions: *The County should:*

- (1) continue to map its outfalls.*
- (2) raise public awareness regarding illicit discharges (e.g., post Informational Bulletin No. 2 on its web site).*

2.4 Construction Site Stormwater Runoff Control (Permit Section II.B.4)

- The County has not completed all measurable goals related to this minimum control measure. Based on the on-site inspection observations and file review, the MS4 audit team has determined that the County is not adequately enforcing the existing Erosion and Sediment Control Ordinance (Chapter 10, Article I) and is not adequately conducting the

Erosion and Sediment Control Inspection Program. See the findings regarding the inspections and file reviews for additional information.

- On July 1, 2005, the Erosion and Sediment Control Ordinance was modified to require construction site operators to control waste and to require documentation that a VPDES storm water permit is secured for construction sites with greater than one acre of disturbance. The deadline for this measurable goal was extended until July 1, 2006.
- All land-disturbing activities, except for the construction of a single-family residence, require an approved erosion and sediment control plan, an erosion and sediment control bond, and an approved land disturbance permit. The County requires an agreement in lieu of a plan for single-family residential construction of less than one acre, but may require an erosion and sediment control plan if site conditions warrant.
- The developer must notify the County 48 hours prior to beginning construction to schedule a preconstruction meeting with an inspector to review plan requirements. The County inspectors also receive notice when a site is approved to begin construction, so that they can monitor for sites that begin construction without providing the 48-hour notice.
- Mr. David Nunnally, Environmental Compliance Manager, and the three erosion and sediment control inspectors that he supervises inspect residential and commercial construction sites equal to or greater than one acre. The building inspector inspects sites smaller than one acre for erosion and sediment control requirements. The erosion and sediment control inspectors and building inspectors are state-certified.
- The County was conducting construction inspections according to a draft alternative inspection schedule, but recently changed its inspection frequency back to every two weeks or more frequently if conditions warrant in order to comply with the Virginia Erosion and Sediment Control Law.
- The County has a schematic illustrating its enforcement escalation procedures. After conducting an inspection, the inspector provides the facility with a Notice of Inspection, which lists violations, establishes a deadline for corrective action, and indicates the re-inspection date. If the same violations are noted upon re-inspection, the facility is given a Notice to Comply (NTC). A NTC can be issued on the first inspection if the violation is particularly serious. If the facility does not comply with the NTC, a Stop Work Order may be issued until all required erosion and sediment control measures are in place. Facilities with chronic noncompliance or egregious violations would be given a Stop Work Order, but the County would like additional penalty authority, especially for projects that do not have an approved plan and have not submitted an erosion and sediment control bond. Although some local municipalities have been using administrative penalties to enforce erosion and sediment control requirements, the County attorneys do not believe that the County has the authority to assess administrative

penalties. The County can issue a civil summons through a district court judge. The County has issued one \$10,000 civil summons for an egregious violation, but the defendant was granted a continuance. Erosion and sediment control inspectors have also asked building inspectors not to inspect sites until all erosion and sediment control measures are in place.

- Findings from the review of the County inspection files for the Bluffs at Bell Creek residential development were as follows:
 - Inspection reports for the time frame of February through July 2005 were reviewed. In the reports dated 7/6/05, 6/6/05, 5/16/05, 4/18/05, 4/12/05, 4/4/05, 3/16/05, and 3/15/05, the sections titled “Corrective action deadline date” and “Re-inspection date” were not completed. In addition, these reports indicated there was sediment and/or untreated runoff leaving the project.
 - There have been ongoing problems associated with a stilling basin at the project site, involving both the site owner, Shield Company, and the utility company, Verizon. A form titled Urban Programs Complaint Response was included in the file. This form indicated specific work that needed to be completed by the owner and Verizon with deadlines in late June 2005. It is unclear whether these issues have been addressed.
 - This site had and is continuing to have repeat violations. Although the County issued a stop work order on 2/14/05 and an NTC (per the NTC re-inspection conducted on 3/16/05), the site continues to be in noncompliance.
- Findings from the site visit to the Bluffs at Bell Creek residential development by the MS4 audit team were as follows:
 - Mr. Albert Myers, Jr. conducted a thorough and comprehensive inspection. He observed and noted all erosion and sediment control issues in his inspection report, except for the individual building site where excavation had begun and a truck had been washed out, but the site had no erosion and sediment control measures in place and no permit posted.
 - The inspection report faxed to the MS4 audit team included a corrective action deadline date of 7/22/05, but did not include a re-inspection date, or the date that the contact person for the site was contacted. Also the report noted that four of the five items listed in the report were repeat violations.
 - Individual building lots, that are typically inspected by County building inspectors, were not in compliance with erosion and sediment controls. It was unclear as to how and when Mr. Myers was going to contact the building inspectors regarding the problems with individual building lots.
- Previous inspection reports for Blue and Gray Self Storage repeatedly noted problems with the silt fence integrity. A recent erosion and sediment control inspection report indicated a major incident of sediment runoff leaving the project because of downed silt fence. During the site visit to Blue and Gray Self Storage by the MS4 audit team, the County inspector:

- Noted several deficiencies that were not reported on previous inspection reports, but appeared to be chronic deficiencies, including poor inlet protection and an unstabilized sediment basin.
- Did not note the minor trackout during the inspection or in his inspection report.
- Was not comfortable requiring the operator to install wire-backed silt fence because it was not on the approved erosion and sediment control plan.

Summaries of the site visits to the Bluffs at Bell Creek and Blue and Gray Self Storage are included in Appendix A.

Required actions: *In accordance with Section II.B.4 of the General Permit, the County must:*

- (1) enforce its existing Erosion and Sediment Control Ordinance and implement an adequate Erosion and Sediment Control Inspection Program.*
- (2) implement its enforcement escalation procedure for noncompliance at construction sites, including the Bluffs at Bell Creek construction site.*
- (3) document all deficiencies on the inspection reports and ensure that all inspection report forms are filled out completely.*

Recommended actions: *The County should:*

- (1) encourage inspectors to require operators to control sediment runoff as appropriate, regardless of whether the control measure is included in the erosion and sediment control plan.*
- (2) notify building inspectors of erosion and sediment control problems on individual lots within a subdivision.*
- (3) further research whether the County can obtain additional penalty authority.*

2.5 Post-Construction Stormwater Management (Permit Section II.B.5)

The County completed all measurable goals that were due by April 9, 2005, including continuing the County Storm Water Management Program and Chesapeake Bay Preservation Act Program, requiring maintenance agreements for permanent storm water management measures, and establishing a tracking database for all permanent BMPs. However, the County is not able to adequately enforce the maintenance

agreements for privately-owned permanent storm water management measures or to ensure that the County is adequately maintaining County-owned permanent storm water management measures because it lacks a formal inspection program.

- The majority of privately-owned BMPs are under a maintenance agreement, which is signed by the property owner and recorded with the deed. The maintenance agreement requires property owners to maintain their BMPs, to submit a third-party inspector's assessment of the BMP condition every three years, and to promptly perform all maintenance that the third-party inspector deems necessary.
- The County inspects privately-owned BMPs as needed. Most inspections are conducted in the form of drive-bys, but the County plans to institute a more formal inspection process.
- The County employs four engineers to conduct construction plan review. The County uses a variety of checklists for plan review (e.g., Administrative Construction Plan Checklist, Site Plan Checklist, and Subdivision Plat Checklist).
- The Environmental Management ordinance requires any development or redevelopment within the Chesapeake Bay Preservation Area to comply with all storm water management criteria detailed in the Virginia Storm Water Management Handbook.
- The Floodplain and Drainage Control ordinance establishes the drainage improvement facilities program, which is paid for by pro rata share fees. The pro rata share fee is based on the equivalent residential unit (ERU) of 5,445 feet of impervious surface. The fee per ERU is currently \$900 and is reevaluated annually. The revenue from the drainage improvement facilities program only funds regional storm water infrastructure, not operation and maintenance activities.
- The County has inventoried most privately-owned and County-owned best management practices (BMPs) in the County, which includes the regulated portion of the MS4 and the portion not currently regulated.
- If a facility is being expanded or renovated, the County will require the owner or operator to modify or maintain the original BMP, as necessary. The County ensures the modified BMP is acceptable before issuing the certificate of occupancy.

Required actions: *In accordance with Section II.B.5 of the General Permit, the County must institute a formal inspection process for its BMPs. Such a program could include inspecting a percentage of randomly-selected BMPs each year or prioritizing BMPs for inspection according to problem areas.*

Recommended actions: *None.*

2.6 Pollution Prevention for Municipal Operations (Permit Section II.B.6)

- The County was not required to complete any measurable goals under this minimum control measure by the time of the MS4 audit.
- On May 27, 2004, County employees attended the “Hanover County Environmental Compliance and VPDES Storm Water Pollution Prevention Plan Training.” Most attendees were mid-level managers from the Fire, Parks and Recreation, and Utilities departments. The County has not scheduled the next training session, but plans to conduct one training session per year. The County hopes to involve more staff-level employees in its next training session.
- Before the VPDES permit was issued, the County conducted a qualitative risk screening of all its municipal facilities. The risk screening was based on questionnaires completed by staff at the municipal facilities. The County determined that the facilities with the most potential for storm water discharges, including the County’s vehicle maintenance facility, are outside of the regulated portion of the MS4. The County considered the potential storm water discharges associated with its facilities including fire stations, parks, and schools.

Required actions: *None.*

Recommended actions: *None.*

2.7 Annual Report (Permit Section II.E.2)

- Section II.E.2 of Permit No. VAR040012 requires the County to submit an Annual Report which includes all the information and data listed in this section of the permit. The MS4 audit team compared the data which are required to be included in the Annual Report with the FY04 Annual Report. The FY04 Annual Report did not include the following items:
 - Results of information collected and analyzed, including monitoring data, if any, during the reporting period (specified in Section II.E.2.b).
 - Notice that the permittee is relying on another government entity to satisfy some of the permit obligations (if applicable) (specified in Section II.E.2.e).

- The approval status of any qualifying local programs (if appropriate), or the progress towards achieving full approval of these programs (specified in Section II.E.2.f).

Required actions: None.

Recommended actions: The County should include the information in the above paragraph in its Annual Report. If the information is not applicable, the County should include a statement indicating that it is not applicable to facilitate VADCR's review of the Annual Report.

2.8 County Resources/Budget

- The County's SWMP has the following funding sources:
 - General funds appropriated by the County Board of Supervisors.
 - Development and inspection fees.
 - Drainage improvement facilities program pro rata share fees.
- The County's general fund also receives revenue from its recycling program.

Required actions: None.

Recommended actions: None.